REMARKS

Claims 1-19 are pending in this application. By this Amendment, independent claims 1, 9 and 17-19 are amended to recite (a) that the second color signal is to be output to an image forming device; (b) that the remaining three variables of the second color signal are additionally determined on the basis of the three variables of the first color signal; (c) an output section or corresponding step that outputs the determined (N-3) variables and the determined remaining variables to the image forming device; (d) that the (N-3) variables are determined before the remaining three variables are determined; and (e) that the (N-3) variables are determined on the basis of a UCR ratio of each of the (N-3) variables and a maximum value of each of the (N-3) variables such that the color represented by a combination of the (N-3) variables is within a color gamut of the image forming device. Support for these amendments can be found in the output unit communication section 25 of Fig. 1 (features (a) and (c) above); Fig. 2 (features (b) and (d) above); and Fig. 6 and the corresponding disclosure (feature (e) above). No new matter is added.

I. The Claims Are Patentable Over The Applied References

The Office Action (1) rejects claims 1-5, 8-13 and 16-19 under 35 U.S.C. §103(a) over U.S. Patent Publication No. 2003/0169438 to Velde et al. (Velde) in view of U.S. Patent No. 5,878,195 to Mahy; and (2) rejects claims 6-7 and 14-15 under 35 U.S.C. §103(a) over Velde in view of Mahy, and further in view of U.S. Patent No. 5,587,063 to Poe et al. (Poe). Applicant respectfully traverses the rejections.

Regarding independent claims 1, 9 and 17-19, the applied references fail to disclose or render obvious "wherein the first conversion of determining [first determination unit] determines the (N-3) variables before the remaining three variables of the second color signal are determined, the (N-3) variables being determined on the basis of a UCR ratio of each of the (N-3) variables and a maximum value of each of the (N-3) variables" (comment added,

claims 1, 9 and 18-19); and "wherein the determining (N-3) variables determines the (N-3) variables before the remaining three variables of each second color signal are determined, the (N-3) variables being determined on the basis of a UCR ratio of each of the (N-3) variables and a maximum value of each of the (N-3) variables" (claim 17).

Velde discloses a method for separating an input color defined in a trajectory space into colorants in a color space. The method includes the steps of (1) color correction; and (2) color separation (Fig. 1). The Office Action cites to Fig. 1 and paragraphs [0177] and [0186]. The cited paragraph [0177] relates to Fig. 18, which shows separation of a color defined in an n-color space into a p-dimensional colorant space by use of an m-dimensional trajectory space.

The Office Action acknowledges that Velde fails to disclose (1) a first conversion of determining (N-3) variables of the second color signal from the first color signal, and (2) a second conversion of determining the remaining three variables of the second color signal on the basis of the determined (N-3) variables of the second color signal and the first color signal, but cites to Mahy for these features.

Mahy discloses a method for color separation. For 3-ink or fewer-than-3-ink processes, Mahy discloses (1) inverting the printer model such as by inverting the Neugebauer equations, and (2) determining the most stable solution (Fig. 5). The Office Action cites to the paragraph at col. 16, lines 23-35, which relates to a generalization of Mahy's method for an n-ink process. In the section cited by the Office Action, for an n-ink process, Mahy discloses (1) considering n-3 colorants as parameters, (2) choosing colorant values within minimum and maximum values for each of the n-3 parameters, (4) sampling the n-3 dimensional parameter space, (4) obtaining the 3-ink colorant values from the printer model in the n-ink space by setting the n-3 colorants to their sampled values, and (5) inverting the 3-ink process and retaining the most optimum solution.

While the feature quoted above of "the (N-3) variables being determined on the basis of a UCR ratio of each of the (N-3) variables" was not previously recited in the claims, claims 5-6 and 13-14 recite a UCR ratio. Regarding claims 5 and 13, the Office Action cites to Mahy at col. 15, lines 1-32 and, regarding claims 6 and 14, the Office Action cites to Poe col. 7, line 40 and to various lines in the paragraph beginning at col. 8, line 5.

Mahy at col. 15, lines 5-32 discloses several cost functions, but none of the cost functions disclose that the colorant combination is chosen based on the UCR ration of each of the (N-3) variables as claimed.

Poe discloses that a transformation R to transform coordinates in a colorant space (e.g., CMYK) to a color space (col. 7, lines 4-14) and a transformation S to transform coordinates in a pseudo-colorant space (i.e., the parameter space, e.g., cmy) to the colorant space (col. 7, lines 14-22) can be combined into a transformation T to transform coordinates in the pseudo-colorant space into the color space (col. 8, lines 22-29). Poe discloses that the transformation S can be used to provide independent control, *inter alia*, of the black component (col. 7, lines 55-60). Poe discloses two measures: λ, which measures an imbalance of the colors in the color component of the pseudo-colorant vector, and μ, which measures the gray or neutral component of the pseudo-colorant vector (col. 8, lines 1-13), and discloses that the colorant values CMYK can be represented as functions of μ, c, m, and y (col. 9, lines 13-52), allowing independent control over the utilization of the black component (col. 9, lines 59-61). However, independent control over the utilization of a black component does not correspond to "based on a UCR ratio of each of the (N-3) variables" as claimed.

The feature that "the (N-3) variables being determined on the basis of ... a maximum value of each of the (N-3) variables" is not disclosed by the applied references because Mahy fails to disclose that the (N-3) variables are determined based on a maximum value of the others of the (N-3) variables. While Mahy discloses several cost functions at col. 15, lines 5-

32, one of which is that the colorant combination is chosen for which a given (i.e., one) colorant value is maximum, none of the cost functions indicate that the (N-3) variables are determined based on a maximum value of each of the (N-3) variables. Velde and Poe, cited as disclosing other features, do not cure this deficiency.

For the foregoing reasons, Applicant requests withdrawal of the rejections.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Attachments:
Petition for Extension of Time
Request for Continued Examination

Date: December 22, 2008

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